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10/551,793	11/08/2006	Shiro Kanegasaki	566.45431X00	5647

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EXAMINER	
KIM, HEE-YONG	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/551,793	KANEGASAKI ET AL.	
	Examiner	Art Unit	
	HEE-YONG KIM	2621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 September 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-4,7-10 and 12-16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4,7-10 and 12-15* is/are rejected.

7)☒ Claim(s) *16* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *27 September 2005* is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *See Continuation Sheet*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :Note 1 9/27/2005, 11/8/2006, 11/27/2006, 11/26/2007, 4/24/2009.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. **Claim 10** is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 10 mentions **first structure** and **second structure** and recites "said observing tool has a **second structure** to allow said vertical lighting to pass through, said first structure has a depressed area to hold the observation target together with a solution,

said second structure is provided with a reflection plane to reflect said vertical lighting when observation is performed,

a **surface** of said first structure, different from a **surface** on which said depressed area is provided, is superimposed on the reflection plane of said second structure".

However, there is no clear disclosure of specifics of first and second structures, and each of the above mentioned surfaces. The examiner suggests the applicant to show mapping of these surfaces as evidence. For the prosecution of the application, the examiner assumes that the second structure has a reflection layer which includes

transparent medium on the top of reflection plane to allow the light pass through to reflection plane on the bottom.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. **Claim 1** is rejected under 35 U.S.C. 103(a) as being unpatentable over Kanegasaki (US 2003/0,003,571) in view of Takeshi (JP 09-292,572), hereafter referenced as Kanegasaki and Takeshi respectively.

Regarding **claim 1**, Kanegasaki discloses Well Unit for Detecting Cell Chemotaxis and Separating Chemotactic Cells. Specifically Kanegasaki discloses An observing tool comprising a structure (Fig.1), for use of storing (wells 2A and 2B, Fig.1) an observation target (cells, paragraph 87), that is used in an observing method which observes (microscope 13, Fig.1) an observation target, by illuminating the target with vertical lighting via an optical system having an objective lens, wherein said structure has a depressed area (wells 2A and 2B, Fig.1, and Groove 5, Fig.2) to hold the observation target together with a solution (specimen solution, paragraph 87). However, Kanegasaki fails to disclose illuminating the target with vertical lighting via an optical system having an objective lens and wherein a bottom of said depressed area is

provided with a reflection plane to reflect said vertical lighting when the observation is performed.

In the analogous field of endeavor, Takeshi discloses Vertical Illumination Type Fluorescence Microscope. Specifically Takeshi discloses illuminating the target (Fig.1) with vertical lighting (Fig.1 shows vertical light onto the target) via an optical system having an objective lens (objective lens 6, fig.1) and wherein a bottom of target (sample 8, fig.1) is provided with a reflection plane (reflection surface 9a, fig.1) to reflect said vertical lighting (reflected by reflection surface, abstract) when the observation is performed, in order to efficiently use excitation light irradiating a sample (abstract)

Therefore, given this teaching, it would have been obvious to one of ordinary skill in the art at the time invention was made to modify Kanegasaki by specially providing illuminating the target with vertical lighting via an optical system having an objective lens and wherein a bottom of said depressed area (Kanegasaki: groove 5, fig.2) is provided with a reflection plane to reflect said vertical lighting when the observation is performed, in order to efficiently use excitation light irradiating a sample. The Kanegasaki detecting cell with well unit, incorporating the Takeshi vertical light illuminating with lenses and reflection surface on the bottom of the Kanegasaki groove has all the features of claim 1.

5. **Claims 2-4, 7-10, and 12** are rejected under 35 U.S.C. 103(a) as being unpatentable over Kanegasaki in view of Takeshi, further in view of Nishimoto (US 5,959,728) (hereafter referenced as Nishimoto).

Regarding **claim 2**, the Kanegasaki detecting cell with well unit, incorporating the Takeshi vertical light illuminating with lenses and reflection surface on the bottom of the Kanegasaki groove, as applied to claim 1, discloses An observing tool comprising a structure allowing an illumination light (Takeshi: fig.1) to pass through, for use of storing an observation target (Kanegasaki: wells 2A and 2B, fig.1), that is used in an observing method which observes an observation target (Kanegasaki: cells, paragraph 87), by illuminating the target with vertical lighting (Takeshi: fig.1) via an optical system having an objective lens (Takeshi: objective lens 6, fig.1), wherein said structure has a depressed area (Kanegasaki: wells 2A and 2B, fig.1) to hold the observation target together with a solution (specimen solution, paragraph 87), and
a surface different (Takeshi: reflection surface 9a, fig.1, is different from bottom surface of Kanegasaki) from a surface having said depressed area is provided with a reflection plane (Takeshi: reflection surface 9a, fig.1) to reflect said vertical lighting (Takeshi: reflected by reflection surface, abstract) when the observation is performed.
However, it fails to disclose a structure allowing an illumination light to pass through.

In the analogous field of endeavor, Nishimoto discloses Method of Bonding Substrates, Detector Cells Produced According to This Method and Optical Measuring Apparatus Having This Detector Cell. Nishimoto specifically discloses a structure (protective layer 3b, fig.3) on the top of reflection layer (reflection layer 3a, fig.3) where protective layer should allow an illumination light to pass through, in order to protect reflection layer.

Therefore, given this suggestion, it would have been obvious to one of ordinary skill in the art at the time invention was made to modify Kanegasaki and Takeshi by specially providing the protective layer which allows an illumination light to pass through for the reflection plane on the channel (Kanegasaki: 5 at Fig.5), in order to protect reflection plate. The Kanegasaki detecting cell with well unit, incorporating the Takeshi vertical light illuminating with lenses and reflection surface on the bottom of the Kanegasaki groove, further incorporating the Nishimoto protective layer for the reflection plane, has all the features of claim 2.

Regarding **claim 3**, the Kanegasaki detecting cell with well unit, incorporating the Takeshi vertical light illuminating with lenses and reflection surface on the bottom of the Kanegasaki groove, as applied to claim 1, discloses An observing tool comprising a first structure allowing an illumination light (Takeshi: fig.1) to pass through, for use of storing an observation target (Kanegasaki: Fig.1), that is used in an observing method which observes an observation target (Kanegasaki: cells, paragraph 87), by illuminating (Takeshi: fig.1) the target (Kanegasaki: cells, paragraph 87) with vertical lighting (Takeshi: fig.1) via an optical system having an objective lens (Takeshi: objective lens 6, fig.1), wherein, said observing tool has a second structure,

said first structure has a depressed area (Kanegasaki: wells 2A and 2B, fig.1) to hold the observation target together with a solution (Kanegasaki: well unit has a cell with cell suspension, paragraph 87),

said second structure is provided with a reflection plane (Takeshi: reflection surface 9a,

fig.1) to reflect said vertical lighting (Takeshi: reflected by reflection surface, abstract) when an observation is performed.

However, Kanegasaki and Takeshi fail to disclose a first structure allowing an illumination light to pass through, and a surface of said first structure, different from a surface on which said depressed area is provided, is superimposed on .the reflection plane of said second structure.

Nishimoto specifically discloses a first structure (protective layer 3b, fig.3) allowing an illumination light to pass through, and a surface of said first structure (protective layer 3b, fig.3), different from a surface on which said depressed area is provided, is superimposed (formed, col.6, line 46) on the reflection plane (reflection layer 3a, fig.3) of said second structure, in order to protect reflection layer.

Therefore, given this suggestion, it would have been obvious to one of ordinary skill in the art at the time invention was made to modify Kanegasaki and Takeshi by specially providing the protective layer for the reflection plane on the channel (Kanegasaki: 5 at Fig.5), in order to protect reflection plate. The Kanegasaki detecting cell with well unit, incorporating the Takeshi vertical light illuminating with lenses and reflection surface on the bottom of the Kanegasaki groove, further incorporating the Nishimoto protective layer for the reflection plane, has all the features of claim 3.

Regarding **claim 4**, the Kanegasaki detecting cell with well unit, incorporating the Takeshi vertical light illuminating with lenses and reflection surface on the bottom of the Kanegasaki groove, further incorporating the Nishimoto protective layer for the reflection

plane, as applied to claim 3, discloses everything claimed except a second structure (Takeshi: reflection surface 9a, fig.1) to allow said vertical lighting to pass through.

However, it was well known in the art that the reflective surface can be either top or bottom of reflective layer. If the bottom of reflective layer is reflective surface, the layer should be transparent to *allow the light to pass through* to the bottom reflective surface.

Therefore, given this teaching, it would have been obvious to one of ordinary skill in the art at the time invention to try reflective surface on the bottom of reflection layer. The Kanegasaki detecting cell with well unit, incorporating the Takeshi vertical light illuminating with lenses and reflection surface on the bottom of the Kanegasaki groove, further incorporating the Nishimoto protective layer for the reflection plane, further incorporating reflective surface on the bottom of reflection layer, has all the features of claim 4.

Regarding **claim 7,** the Kanegasaki detecting cell with well unit, incorporating the Takeshi vertical light illuminating with lenses and reflection surface on the bottom of the Kanegasaki groove, further incorporating the Nishimoto protective layer for the reflection plane, as applied to claim 3, discloses An observing method (Kanegasaki: Fig.1) which utilizes an observing tool comprising a structure, for use of storing (Kanegasaki: wells 2A and 2B, fig.1) an observation target (Kanegasaki: cells, paragraph 87), and observes (Kanegasaki: microscope, Fig.1) the observation target by illuminating the target with vertical lighting via an optical system having an objective lens (Takeshi: objective lens 6, fig.1), wherein,

said observation target is a micro transparent object (cell is well known as micro transparent),

said structure has a depressed area (Kanegasaki: wells 2A and 2B, fig.1, groove 5, fig.2) to hold the observation target together with a solution (Kanegasaki: specimen solution, paragraph 87),

a bottom of said depressed area (Kanegasaki: groove 5, fig.2) is provided with a reflection plane (Takeshi: reflection surface 9a, fig.1) to reflect said vertical lighting when observation is performed, and

said micro transparent object disposed in a specific distance (distance apart by Nishimoto: protective layer 3b, fig.3) from said reflection plane is observed by use of said observing tool.

Regarding **claim 8,** the Kanegasaki detecting cell with well unit, incorporating the Takeshi vertical light illuminating with lenses and reflection surface on the bottom of the Kanegasaki groove, further incorporating the Nishimoto protective layer for the reflection plane, as applied to claim 3, discloses An observing method which utilizes an observing tool comprising a structure allowing an illumination light (Takeshi: fig.1) to pass through, for use of storing (Kanegasaki: wells 2A and 2B, fig.1) an observation target (Kanegasaki: cells, paragraph 87), and observes (Kanegasaki: microscope, Fig.1) the observation target by illuminating the target with a vertical lighting (Takeshi: fig.1)via an optical system having an objective lens (Takeshi: objective lens 6, fig.1), wherein,

said observation target is a micro transparent object (cell is well known as micro transparent),

said structure has a depressed area (Kanegasaki: wells 2A and 2B, fig.1) to hold the observation target together with a solution (Kanegasaki: specimen solution, paragraph 87),

a bottom of said depressed area is provided with a reflection plane (Takeshi: reflection surface 9a, fig.1) to reflect said vertical lighting when observation is performed, and said micro transparent object disposed in a specific distance (distance apart by Nishimoto: protective layer 3b, fig.3) from said reflection plane is observed by use of said observing tool.

Regarding **claim 9,** the Kanegasaki detecting cell with well unit, incorporating the Takeshi vertical light illuminating with lenses and reflection surface on the bottom of the Kanegasaki groove, further incorporating the Nishimoto protective layer for the reflection plane, as applied to claim 3, discloses An observing method which utilizes an observing tool comprising a first structure (Nishimoto: protective layer 3b, fig.3) allowing an illumination light to pass through (examiner maintains that th first structure allows illumination light to pass through), for use of storing (Kanegasaki: wells 2A and 2B, fig.1) an observation target (Kanegasaki: cells, paragraph 87), and observes (Kanegasaki: microscope, Fig.1) the observation target by illuminating the target with a vertical lighting (Takeshi: fig.1)via an optical system having an objective lens (Takeshi: objective lens 6, fig.1), wherein,

said observing tool has a second structure (Takeshi: reflection surface 9a, fig.1),

said first structure has a depressed area (Kanegasaki: wells 2A and 2B, fig.1) to hold the observation target together with a solution (Kanegasaki: specimen solution,

paragraph 87),

said second structure is provided with a reflection plane (Takeshi: reflection surface 9a, fig.1) to reflect said vertical lighting when observation is performed,

a surface (Nishimoto: protective layer 3b, fig.3) of said first structure , different from a surface on which said depressed area is provided, is superimposed (Nishimoto: fig.3) on the reflection plane of said second structure, and

said micro transparent object (cell is well known as micro transparent) disposed in a specific distance (distance apart by Nishimoto: protective layer 3b, fig.3) from said reflection plane is observed by use of said observing tool.

Regarding **claim 10,** the Kanegasaki detecting cell with well unit, incorporating the Takeshi vertical light illuminating with lenses and reflection surface on the bottom of the Kanegasaki groove, further incorporating the Nishimoto protective layer for the reflection plane, as applied to claim 3, discloses An observing method which utilizes an observing tool comprising a first structure (Kanegasaki: well unit at fig.1 and Nishimoto: protective layer 3b, fig.3) allowing an illumination light to pass through, for use of storing an observation target, and observes the observation target by illuminating the target with a vertical lighting via an optical system having an objective lens (Takeshi: fig.1), wherein,

said observation target (Kanegasaki: cells, paragraph 87) is a micro transparent object (cell is well known as micro transparent),

said observing tool has a second structure (Takeshi: reflection surface 9a, fig.1),

said first structure has a depressed area (Kanegasaki: wells 2A and 2B, fig.1, groove 5. fig.2) to hold the observation target together with a solution (Kanegasaki: specimen solution, paragraph 87),

said second structure is provided with a reflection plane (Takeshi: reflection surface 9a, fig.1) to reflect said vertical lighting when observation is performed,

a surface (Nishimoto: protective layer 3b, fig.3) of said first structure, different from a surface (Kanegasaki: well or groove) on which said depressed area is provided, is superimposed (Nishimoto: fig.3) on the reflection plane of said second structure, and said micro transparent object (cell is well known as micro transparent) disposed in a specific distance (distance apart by Nishimoto: protective layer 3b, fig.3) from said reflection plane is observed by use of said observing tool.

However, it fails to disclose said observing tool has a second structure to allow said vertical lighting to pass through.

However, it was well known in the art that the reflective surface can be either top or bottom of reflective layer. If the bottom of reflective layer is reflective surface, the layer should be transparent to *allow the light to pass through* to the bottom reflective surface.

Therefore, given this teaching, it would have been obvious to one of ordinary skill in the art at the time invention to try reflective surface on the bottom of reflection layer. The Kanegasaki detecting cell with well unit, incorporating the Takeshi vertical light illuminating with lenses and reflection surface on the bottom of the Kanegasaki groove, further incorporating the Nishimoto protective layer for the reflection plane, further

incorporating reflective surface on the bottom of reflection layer, has all the features of claim 10.

Regarding **claim 12**, the Kanegasaki detecting cell with well unit, incorporating the Takeshi vertical light illuminating with lenses and reflection surface on the bottom of the Kanegasaki groove, further incorporating the Nishimoto protective layer for the reflection plane, as applied to claim 7, discloses wherein said observation target is a cell (Kanegasaki: cells, paragraph 87), and said liquid is a culture solution (Kanegasaki: specimen solution, paragraph 87).

6. **Claim 13** is rejected under 35 U.S.C. 103(a) as being unpatentable over Kanegasaki in view of Takeshi, further in view of Nishimoto, and further in view of Yokota (US 5,202,871) (hereafter referenced as Yokota).

Regarding **claim 13**, the Kanegasaki detecting cell with well unit, incorporating the Takeshi vertical light illuminating with lenses and reflection surface on the bottom of the Kanegasaki groove, further incorporating the Nishimoto protective layer for the reflection plane, as applied to claim 7, discloses everything claimed except wherein, a distance between said observation target and said reflection plane becomes a half or less than the focal depth of said optical system.

In the analogous field of endeavor, Yokota discloses Focus Servo Control Device. Yokota specifically discloses that the distance between object lens and reflecting surface should be somewhat close to focal depth, in order to allow focus servo

control. Also the target is between object lens and reflecting surface, therefore the distance between the target and reflecting surface should be far less than focal depth.

Therefore, given this teaching, it would have been obvious to one of ordinary skill in the art at the time invention was made to modify Kanegasaki and Takeshi and Nishimoto by specially providing wherein a distance between said observation target and said reflection plane becomes a half or less than the focal depth of said optical system, in order to allow focus servo control. The Kanegasaki detecting cell with well unit, incorporating the Takeshi vertical light illuminating with lenses and reflection surface on the bottom of the Kanegasaki groove, further incorporating the Nishimoto protective layer for the reflection plane, further incorporating Yokota focus servo control, has all the features of claim 13.

7. **Claim 14** is rejected under 35 U.S.C. 103(a) as being unpatentable over Kanegasaki in view of Takeshi, further in view of Nishimoto, further in view of Yokota, and further in view of Yamaguchi (Optics and Lasers in Engineering 36, pp.417-428, 2001) (hereafter referenced as Yamaguchi).

Regarding **claim 14**, the Kanegasaki detecting cell with well unit, incorporating the Takeshi vertical light illuminating with lenses and reflection surface on the bottom of the Kanegasaki groove, further incorporating the Nishimoto protective layer for the reflection plane, further incorporating Yokota focus servo control, as applied to claim 13, discloses everything claimed except wherein,

said observation target is stored in said observing tool so that distance d between the

observation target and the reflection plane satisfies the following formula (1),

$d \leq W/(2NA^2)$ ... (1)

(in the formula, d represents the distance between the observation target and the reflection plane, W represents a wavelength of the light employed in the observation, and NA represents a numerical aperture of the optical system).

In the analogous field of endeavor, Yamaguchi discloses Surface Contouring by Phase-Shifting Digital Holography. Yamaguchi specifically discloses that focal depth is given by wavelength divided by the square of the numerical aperture ((W/NA^2, pp. 426, line 1-2). Also in the claim 13, Yokota teaches that a distance between said observation target and said reflection plane becomes a half or less than the focal depth of said optical system, in order to allow focus servo control.

Therefore, given this teaching, it would have been obvious to one of ordinary skill in the art at the time invention was made to modify Kanegasaki and Takeshi and Nishimoto and Yokota by specially providing focal depth given by (W/NA^2), in order to allow focus servo control. The Kanegasaki detecting cell with well unit, incorporating the Takeshi vertical light illuminating with lenses and reflection surface on the bottom of the Kanegasaki groove, further incorporating the Nishimoto protective layer for the reflection plane, further incorporating Yokota focus servo control, further incorporating focal depth given by (W/NA^2), has all the features of claim 14.

8. **Claim 15** is rejected under 35 U.S.C. 103(a) as being unpatentable over Kanegasaki in view of Takeshi, further in view of Nishimoto, and further in view of Fujimori (US 3,782,834) (hereafter referenced as Fujimori).

Regarding **claim 15**, the Kanegasaki detecting cell with well unit, incorporating the Takeshi vertical light illuminating with lenses and reflection surface on the bottom of the Kanegasaki groove, further incorporating the Nishimoto protective layer for the reflection plane, as applied to claim 7, discloses everything claimed except wherein, said observation target is stored in said observing tool so that the numerical aperture of the illumination light against the observation target becomes smaller than the numerical apertures of the objective lens.

In the analogous field of endeavor, Fujimoto discloses Method of Correcting Photoelectric Microscopes. Fujimoto specifically discloses that the numerical aperture of the illumination light against the observation target becomes smaller than the numerical apertures of the objective lens, in order to have enough light on the target (col.4, line 3-8).

Therefore, given this teaching, it would have been obvious to one of ordinary skill in the art at the time invention was made to modify Kanegasaki and Takeshi and Nishimoto by specially providing wherein, said observation target is stored in said observing tool so that the numerical aperture of the illumination light against the observation target becomes smaller than the numerical apertures of the objective lens, in order to have enough light on the target. The Kanegasaki detecting cell with well unit, incorporating the Takeshi vertical light illuminating with lenses and reflection surface on

the bottom of the Kanegasaki groove, further incorporating the Nishimoto protective layer for the reflection plane, further incorporating Fujimoto numerical aperture of the illumination light against the observation target smaller than the numerical apertures of the objective lens, has all the features of claim 15.

Allowable Subject Matter

9. **Claim 16** would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim 7.

Dependent **claim 16** recites"…distance d between the observation target and the reflection plane satisfies the following formula (2),

$d > F/ (4\tan (\sin^{-1}NA))$... (2)

(in the formula, d represents the distance between the observation target and the reflection plane, F represents a visual field diameter of the optical system, and NA represents a numerical aperture of the optical system)…" which are features that are not anticipated nor obvious over the art of record. Accordingly, if the claims are amended as indicated above, and if rejected claims 1-4, 7-10, and 12-15 are cancelled, the application would be placed in condition for allowance.

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to HEE-YONG KIM whose telephone number is (571)270-3669. The examiner can normally be reached on Monday-Thursday, 8:00am-5pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marsha Banks-Harold can be reached on 571-272-7905. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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/HEE-YONG KIM/
Examiner, Art Unit 4192

/ANDY RAO/
Primary Examiner, Art Unit 2621
July 3, 2010